

Application No.: 10/663551
Docket No.: EL0496USNA
Response to Final Office Action of 15 Nov 05 as RCE submission

Amendments to the Claims

The "Listing of Claims" will replace all prior versions of the claims in the application.

Listing of Claims:

1. (Currently Amended) A printed wiring board, comprising:
a first circuit conductor extending through at least a part of the printed wiring board;
a second circuit conductor extending through at least a part of the printed wiring board; and
a plurality of stacked innerlayer panels, wherein at least one of the innerlayer panels comprises:
at least one capacitor, comprising:
a first electrode having a width and formed from a foil and having a first electrode termination coupled to the first circuit conductor, wherein the first electrode termination is within the footprint of the first electrode;
at least one dielectric layer comprising a high dielectric constant material disposed over the first electrode including an aperture formed therethrough; and
a second electrode having a width and formed over the first dielectric layer and having a second electrode termination coupled to the second circuit conductor,
wherein the second electrode termination is spaced a selected distance from the first electrode termination to reduce separation between terminations and
wherein the termination of the first electrode and the termination of the second electrode are at a distance from each other, which is less than the width of either the first electrode or the second electrode.
2. (Previously Presented) The printed wiring board of claim 1, wherein the first circuit conductor extends through the dielectric layer.

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3. (Previously Presented) The printed wiring board of claim 2, wherein the second electrode termination is within the footprint of the second electrode; and the second circuit conductor extends through the aperture of the dielectric layer.
4. (Previously Presented) The printed wiring board of claim 1, wherein the capacitor of the at least one innerlayer panel is laminated to a laminate material disposed over the capacitor, wherein the first circuit conductor extends through the laminate material.
5. (Original) The printed wiring board of claim 4, wherein the second circuit conductor extends through the laminate material.
6. (Previously Presented) The printed wiring board of claim 1, the capacitor further comprising:
a third electrode spaced from the second electrode by a two-layer dielectric and electrically connected to the first electrode.
7. (Previously Presented) The printed wiring board of claim 1, wherein the first electrode has a first component side that contacts the dielectric layer, and a second side opposite to the first component side wherein the first circuit conductor extends from the second side of the first electrode.
8. (Previously Presented) The printed wiring board of claim 7, wherein the termination of the second electrode is within the footprint of the second electrode.
9. (Previously Presented) The printed wiring board of claim 7, the innerlayer panel further comprising:
a laminate material disposed over the second side of the first electrode, wherein the first circuit conductor extends through the laminate material and the second circuit conductor extends through the laminate material.
10. (Previously Presented) The printed wiring board of claim 7, the capacitor further comprising:
a third electrode spaced from the second electrode by a two-layer dielectric and electrically connected to the first electrode.

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11. (Previously Presented) A method of making a printed wiring board, comprising:
forming a plurality of stacked innerlayer panels, wherein forming at least one of the innerlayer panels comprises:
providing a metallic foil;
forming a dielectric layer comprising a high dielectric constant material over the metallic foil and including an aperture formed therethrough;
forming a first electrode from the metallic foil, the first electrode having a width and a first electrode termination located within the footprint of the first electrode; and
forming a second electrode over the dielectric layer, the second electrode having a width and a second electrode termination, wherein the first electrode, the second electrode, and the dielectric form a capacitor, and wherein the second electrode termination is spaced a selected distance from the first electrode termination to reduce separation between terminations and
wherein the termination of the first electrode and the termination of the second electrode are at a distance from each other, which is less than the width of either the first electrode or the second electrode;
forming a first circuit conductor, wherein the first circuit conductor extends through at least a portion of the printed wiring board and contacts the first electrode termination; and
forming a second circuit conductor, wherein the second circuit conductor contacts the second electrode termination and extends through at least a portion of the printed wiring board.
12. (Previously Presented) The method of claim 11, wherein the first circuit conductor extends through the aperture of the dielectric layer.
13. (Previously Presented) The method of claim 12, wherein:
the second electrode termination is within the footprint of the second electrode;
and

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forming the second circuit conductor comprises forming a conductive via that extends through the dielectric layer.

14. (Original) The method of claim 12, wherein forming the innerlayer panel comprises:

forming a laminate material over the first and second electrodes and over the dielectric.

15. (Original) The method of claim 14, wherein:

forming the first circuit conductor comprises forming a conductive via through the laminate material; and

forming the second circuit conductor comprises forming a conductive via through the laminate material.

16. (Previously Presented) The method of claim 12, wherein forming the innerlayer panel comprises:

forming a third electrode spaced from the second electrode by a two-layer dielectric and electrically connected to the first electrode, wherein the first electrode, the second electrode, the third electrode and the dielectric layer form the capacitor.

17. (Original) The method of claim 12, wherein forming the innerlayer panel comprises:

providing a laminate material; and
laminating the metallic foil to the laminate material before forming the first electrode.

18. (Original) The method of claim 11, wherein the first electrode has a first component side that contacts the dielectric, and a second side opposite to the first side, wherein forming the first circuit conductor comprises:

forming the first circuit conductor to extend from the second side of the first electrode.

19. (Original) The method of claim 18, wherein:

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the second electrode termination is within the footprint of the second electrode;
and
forming the innerlayer panel comprises forming a laminate material over the
second side of the first electrode.

20. (Original) The method of claim 19, wherein:
forming a first circuit conductor comprises forming a conductive via through
the laminate material; and
forming a second circuit conductor comprises forming a conductive via
through the laminate material.

21. (Previously Presented) The method of claim 18, wherein forming the
innerlayer panel comprises:
forming a third electrode spaced from the second electrode by a two-layer
dielectric and electrically connected to the first electrode, wherein the first electrode,
the second electrode, the third electrode and the dielectric form the capacitor.

22. (Original) The method of claim 18, wherein forming the innerlayer panel
comprises:
providing a laminate material; and
laminating the metallic foil to the laminate material before forming the first
electrode.

23. (Original) The method of claim 11, wherein forming a plurality of stacked
innerlayer panels comprises:
providing a specified number of innerlayer panels;
joining the innerlayer panels together;
forming a third circuit conductor through at least two of the joined innerlayer
panels; and
incorporating the joined innerlayer panels into the printed wiring board.